



COMPONENTS FAQ

Q I've heard about ATI's new CrossFire graphics cards, which let you run two ATI cards together. As this is similar to nVidia's SLI, can I use the same motherboard?

A Not at the moment. SLI motherboards, such as the two we review this month on page 47, use nVidia's nForce 4 SLI chipset and support only a pair of nVidia graphics cards.

CrossFire works only in ATI and Intel motherboards. The situation looks set to change when Intel launches its 975 chipset. This is said to support 'flexible PCI Express configuration', which means it will support both SLI and CrossFire graphics cards.

The chipset is due for release early next year, perhaps as soon as January, but no official announcements or prices have been released. Keep an eye on this section, and we'll review this kit as soon as it's available.

Meanwhile, if you are buying a new motherboard, you'll have to work out whether to opt for nVidia or ATI. At the moment, nVidia's nForce 4 SLI chipset is the more established and its SLI technology is more readily available, so we'd choose nVidia technology.

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▲ Current motherboards support ATI's CrossFire or nVidia's SLI (above), but Intel's new chipset should change that

REVIEW GRAPHICS CARDS

GIGABYTE GV-3D1-68GT

RATING ★★★★★

PRICE £390 inc VAT

SUPPLIER Gigabyte

DETAILS www.gigabyte.com.tw

GIGABYTE GeForce 7800 GT

RATING ★★★★★

PRICE £260 inc VAT

SUPPLIER www.dabs.com

DETAILS www.gigabyte.com.tw

Gigabyte's original 3D1 card used two nVidia 6600GTs on a single card, providing all the benefits of a dual-card SLI setup without having to install two cards. The new version of the card, the GV-3D1-68GT, does the same with two 6800 GTs. The company has also launched its GeForce 7800 GT, one step down from top-of-the-range 7800GTX, so we decided to find out which offers the best value.

The 3D1-68GT has two 6800 GT chips, each with 256MB of GDDR3 RAM running at 500MHz (1GHz effective), 16 pixel-pipelines and a core speed of 350MHz. The 7800 GT has 20 pixel-pipelines, 256MB of GDDR3 RAM running at 500MHz (1GHz effective) and a core speed of 400MHz. As a single card, it doesn't have the overhead of trying to work out which graphics processor should deal with which bit of information, as SLI does.

The 3D1-68GT has a big disadvantage: it needs a Gigabyte SLI motherboard to work. It's an SLI dual-card setup on a single card, but still needs a motherboard that can divide a single PCI-E x16 channel into two x8 channels, and Gigabyte's SLI



motherboards are the only ones it works with. The 7800 GT works in any motherboard with a PCI-E x16 slot. Also, the 3D1-68GT's two cooling fans are very loud compared to the 7800 GT's single fan.

We tested both using Gigabyte's GA-K8N Ultra SLI motherboard (see page 48) and an AMD Athlon 64 4000+ processor. Our 3DMark03 results favoured the 3D1-68GT; it scored 20,521 at a resolution of 1,024x768 compared with the 7800 GT's 14,601. Both performed well at 1,600x1,200 with 4x full-scene anti-aliasing (FSAA) turned on, but the 3D1-68GT scored higher with 9,422 compared to the 7800GT's 5,930. Both show they can run games at high resolutions, though. We also tested both at 1,600x1,200 in Doom 3 with 4x FSAA. The 7800 GT managed an impressive 86.5 frames per second (fps); the 3D1-68GT, 72.7fps. Furthermore, the 7800 GT was less than 5fps slower than its big brother, the 7800 GTX.

Our tests show that each card is faster in different circumstances. On average, though, they're similar in performance, so the 7800GT is the best buy. It's about £100 cheaper than the 3D1-68GT and 7800 GTX, won't need a specific motherboard, and you can always upgrade it to SLI in the future.

David Ludlow

SPECIFICATIONS GV-3D1-68GT: 2x GeForce 6800 GT cores each running at 350MHz, with 256MB GDDR3 running at 500MHz (1GHz effective) and 16 pixel-pipelines. PCI-E x16 interface, requires Gigabyte SLI motherboard. **Part code** GV-3D1-68GT
7800 GT: GeForce 7800 GT, 400MHz core, 256MB GDDR3 (1GHz effective), 20 pixel-pipelines, PCI-E x16 interface. **Part code** GV-NX78T256V-B

HOTLIST GRAPHICS CARD

GECUBE X800 XL

RATING ★★★★★

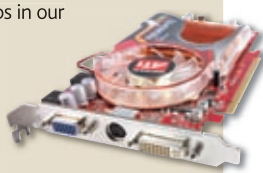
PRICE £185 inc VAT

SUPPLIER www.sphinxcomputers.com

DETAILS www.gecube.com

Based on ATI's Radeon X800 XL chip, GeCube's graphics card perfectly balances price against performance. With 16 pixel pipelines, a 500MHz core speed and 1GHz of GDDR3 memory, it has fantastic specifications. These shone through in our tests, scoring 61.4fps in our Doom 3 test.

This is an excellent card for those that want high-end performance without the huge cost.



SPECIFICATIONS ATI Radeon X800 XL, 256MB GDDR3 memory, PCI-E x16 interface, TV out (composite, component and S-video). **Part code** VC26057



PRICE
CUT

HOTLIST PROCESSOR

INTEL Pentium 4 550

RATING ★★★★★

PRICE £181 inc VAT

SUPPLIER www.pcnextday.co.uk

DETAILS www.savastore.com

The Pentium 4 550 runs at a respectable clock speed of 3.4GHz, providing ample raw power, and is particularly strong at video

compression. The processor will work with any LGA775 motherboard, which also means you can use the latest DDR2 memory and PCI-E graphics cards.

SPECIFICATIONS 3.4GHz clock speed, LGA775 connector, 800MHz frontside bus. **Part code** BX80-547PG3400E



HOTLIST BAREBONES CASE

BIOSTAR iDEQ 330P

RATING ★★★★★

PRICE £215 inc VAT

SUPPLIER www.microdirect.co.uk

DETAILS www.biostar.com.tw

Biostar's iDEQ 330P uses the same principles as Intel's BTX design, but applies it to Socket 939 AMD processors. A redesigned motherboard means that a single fan is all that's needed to cool the processor and motherboard.

The case is very well designed and opens like a car bonnet. It achieved good scores in our performance tests.

SPECIFICATIONS nVidia nForce 4 chipset, supports AMD Socket 939 processors, two DIMM slots, one PCI, one PCI-E x16, one PCI-E x1 slot, one 5 1/4" drive bay, two 3 1/2" drive bays, 7-in-1 memory card reader, three USB2, one Gigabit Ethernet, two FireWire ports, eight-channel audio. **Part code** BARB010DQ330P





REVIEW MOTHERBOARD

FOXCONN 945G7MA-8EKRS2

RATING ★★★★★

PRICE £78 inc VAT

SUPPLIER www.cclonline.comDETAILS www.foxconn.com

Intel's 945 chipset has been around a few months, but Foxconn's 945G7MA is the first motherboard we have seen that uses its integrated graphics.

Its performance isn't great, though, and it managed a score of just 1,780 in 3DMark03. This puts the latest games out of the picture, but it is fine if you want to play something less demanding, such as strategy games, instead. It has a PCI-E x16 slot, so you can easily install a dedicated 3D graphics card later. It also has one PCI-E x1 and two PCI slots for further expansion cards.



We tested the motherboard using a 3.6GHz Pentium 4 processor and 1GB of DDR2 memory. Scores of 135 in our *Shopper* application benchmarks and 4,673 in PCMark04 show that it is on a par with other motherboards that use the 945 chipset.

You can upgrade the processor later, as the motherboard supports dual-core processors and those with a 1,066MHz frontside bus.

The motherboard has one FireWire one Gigabit Ethernet and four USB2 ports on the rear panel, so you can connect all your peripherals from the moment you install it in a case.

Foxconn provides only a small selection of cables in the box, including a solitary SATA cable, so you may have to buy more if you're looking to install more than one hard disk.

If you plan to build a basic PC with integrated peripherals, the 945G7MA will happily do the job, but nothing makes it stand out from the crowd.

David Ludlow

✓ Good value

✗ Poor graphics performance

SPECIFICATIONS Intel 945G chipset, takes Intel LGA775 processors, four DDR2 memory slots, one PCI-E x16, one PCI-E x1, two PCI, four USB2, FireWire, Gigabit Ethernet, 7.1 surround sound, integrated graphics, six SATA2, two IDE. **Part code** 945G7MA-8EKRS2

REVIEW MOTHERBOARD

FOXCONN Winfast NF4SK8AA

RATING ★★★★★

PRICE £86 inc VAT

SUPPLIER www.novatech.co.ukDETAILS www.foxconn.com

SLI motherboards are no longer rare nor any more expensive than standard motherboards. Foxconn's Winfast's NF4SK8AA is the latest nForce 4 SLI board to hit the market.

It takes any Socket-939 Athlon 64 processor and up to two PCI-E graphics cards in its dual PCI-E x16 slots. To put the board into SLI mode, you have to switch the module from Normal to SLI, just as



with other boards we've reviewed. The only problem with using two graphics cards is they block access to the PCI-E x1 slot, although you've still got three PCI slots for other cards.

This motherboard provides the full range of features the nForce 4 chipset has to offer, including two network ports for connecting to multiple networks or sharing a network connection. You don't get FireWire ports, though. The headers are on the motherboard, but you will have to buy the ports separately.

We tested the board using an AMD Athlon 64 3500+ processor and 1GB of DDR memory in a

dual-channel configuration. It scored 113 in the *Shopper* application benchmarks and 4,187 in PCMark04, which is about average for a board of this type.

The price is about average, too, but we'd rather spend an extra few pounds and buy the ECS KN1 Extreme SLI (see below), which performed slightly better and comes with more features.

David Ludlow

✓ Cheap for an SLI motherboard

✗ No FireWire ports; you don't get much in the box

SPECIFICATIONS nVidia nForce 4 SLI chipset, takes Socket 939 AMD processors, four DDR memory slots, two PCI-E x16, one PCI-E x1, three PCI, four USB2, Gigabit Ethernet, Ethernet, 7.1 surround sound, six SATA2, two IDE. **Part code** NF4SK8AA

HOTLIST BAREBONES CASE

FOXCONN Tuckaway

RATING ★★★★★

PRICE £200 inc VAT

SUPPLIER sales.uk@foxconn.comDETAILS www.foxconnchannel.com

If you want to build a small PC for basic office tasks, Foxconn's Tuckaway is a good starting point. Its tiny frame comes preinstalled with a DVD drive and memory card reader, while it will house an LGA775 Pentium 4 processor up to 3.4GHz. There's room for a single SATA hard disk, although not all hard disks will fit into the caddy. For a basic PC, though, it's an excellent choice.



SPECIFICATIONS Intel 915 chipset, takes LGA775 processors (max 3.4GHz), DVD/CD-RW combo drive, 7-in-1 memory card reader, six USB2 ports, two FireWire ports, one PCI slot. **Part code** Tuckaway

HOTLIST PROCESSOR

AMD Athlon 64 3400+

RATING ★★★★★

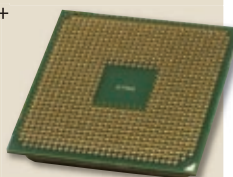
PRICE £126 inc VAT

SUPPLIER www.microdirect.com

AMD's Athlon 64 3400+ on Socket 754 is nearly as fast as a Socket 939 Athlon, and significantly cheaper. Combine it with one of the many cheap Socket 754 motherboards and you can build a powerful computer on a tight budget.

Windows XP 64-bit edition is now available, so it won't be long before there are applications that will take advantage of its highly developed capabilities.

SPECIFICATIONS 2.4GHz clock speed, Socket 754, 2x 800MHz HyperTransport bus. **Part code** ADA3400AXB0X



HOTLIST MOTHERBOARD

ECS KN1 SLI Extreme

RATING ★★★★★

PRICE £90 inc VAT

SUPPLIER www.directfrom.comDETAILS www.ecs.uk.com

ECS's KN1 SLI Extreme motherboard uses nVidia's nForce 4 SLI chipset, so you can use two graphics cards together. It also supports all Socket 939 Athlon 64 processors, so it forms the basis of a powerful computer.

Performance is excellent, and the motherboard has every port you could possibly want. For the price, this is excellent value.

SPECIFICATIONS nForce 4 SLI chipset, supports AMD Socket 939 processors, three PCI, one PCI-E x16, one PCI-E x1, four DIMM slots, two Gigabit Ethernet, ECS Top Hat Flash, three IDE, six SATA2, four USB2, FireWire. **Part code** KN1 SLI





REVIEW GRAPHICS CARD

ASUS
N6600GT Silencer

RATING ★★★★★

PRICE £142 inc VAT

SUPPLIER www.e-components.co.ukDETAILS www.asus.com.tw

If you're building a quiet computer for playing games, the last thing you want is a loud graphics card to spoil the atmosphere. This isn't a problem with the ASUS N6600GT Silencer, as its passive cooling makes it silent.

A large red heatsink covers the nVidia 6600GT graphics chip, while heat pipes attached to another heatsink draw heat away from card. While this ensures the card doesn't make a sound, it's not the neatest design we've seen.

This cooling system makes the Silencer very heavy, and its weight can pull the card out of its PCI-E slot, so you need to screw it in tightly. You can rotate the heat pipe and heatsink by 90° to make room for another card in SLI mode, but you need a large case to accommodate two comfortably. Gigabyte makes a similar card, but it spreads the heatsink more evenly over both sides, so it's no more cumbersome than a standard 6600GT.

Graphics performance is one area in which we had no complaints, as the 256MB card did well in all our tests. Its score of 5,321 in 3DMark03 puts the card in the same league as other 6600GTs we've seen. In our Doom 3 test, its score of 49.2fps at a resolution of 1,024x768 with 4x full-scene anti-aliasing (FSAA) shows that it can cope with all modern games at this resolution, and with a high level of detail. However, it struggled a little at 1,280x1,024, managing just 28.6fps. With FSAA switched off, it earned a better score of 62.3fps at 1,280x1,024 and 46.4fps at 1,600x1,200, so you can play at higher resolutions if you're willing to sacrifice some detail.

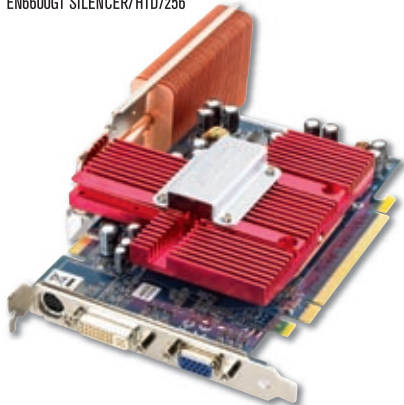
The software bundle isn't very exciting, though, and while this silent version is only a little more expensive than ASUS's standard version, there are better silent designs out there.

David Ludlow

✓ Silent; good performance

✗ Heavy; bulky

SPECIFICATIONS nVidia 6600 GT, 500MHz core speed, 256MB GDDR3 running at 500MHz (1GHz effective), eight pixel pipelines. **Part code** EN6600GT SILENCER/HTD/256



REVIEW MOTHERBOARD

GIGABYTE
GA-K8N Ultra SLI

RATING ★★★★★

PRICE £88 inc VAT

SUPPLIER www.morecomputers.co.ukDETAILS www.gigabyte.com.tw

The GA-K8N Ultra SLI is Gigabyte's latest motherboard to use nVidia's nForce 4 SLI chipset. It also features technology that enables it to use the company's 3D1 graphics cards, which place two graphics cores on a single card – SLI without the hassle of installing two cards.

The board comes with the SLI module, too, so you can put it into conventional SLI mode and install two graphics cards in the dual PCI-E x16 slots. This blocks a PCI-E x1 slot, but leaves another free and still gives you two PCI slots for expansion.

This motherboard provides a good base for a powerful computer, with support for any Socket-939 AMD processor and dual-channel DDR memory. Its scores of 116 in our application benchmarks and 4,281 in PCMark04 are what we'd expect from an SLI motherboard, just behind the pace of our Hotlist's ECS KN1 Extreme SLI.

However, motherboards aren't just about performance, and features can often swing the decision. With the GA-K8N SLI Ultra you have nothing to worry about, as it's one of the most feature-packed motherboards we've seen. The board has four USB2 ports and two Gigabit Ethernet ports plus 7.1 audio outputs. There are three further USB2 headers and a FireWire header, and Gigabyte provides the necessary port plates in the box, so you can use what you need.

There are eight SATA2 ports (four normal, four RAID), so storage won't be a problem. Again, Gigabyte provides all the cables you need in the box, all colour coded to match the ports.

What's more, the Ga-K8N Ultra SLI is completely silent thanks to its passive cooling. As many motherboards carry at least one fan, this is a great choice if you want to build a powerful yet quiet computer.

David Ludlow

✓ Gigabyte provides all the cables you need; lots of ports

✗ Average performance

SPECIFICATIONS nVidia nForce 4 SLI chipset, Socket 939 AMD processors, 4x DDR slots, 2x PCI-E x16, 2x PCI-E x1, 2x PCI, 10x USB2, 2x FireWire, 2x Gigabit Ethernet, 7.1 surround sound, 8x SATA2



REVIEW MOTHERBOARD

ECS
PF88

RATING ★★★★★

PRICE £67 inc VAT; A4S riser £33 inc VAT

SUPPLIER www.pcnextday.co.ukDETAILS www.ecs.com.tw

ECS's PF88 is probably the strangest motherboard we've ever reviewed, as you can convert it from supporting Intel to AMD processors by installing an optional riser card (different boards are available for Socket 754 and Socket 939) in one easy step. At least that's the theory.

In practice, changing from Intel to AMD is quite tricky. You have to remove 24 individual jumpers. The riser card blocks the first PCI-E x16, so you then have to move your graphics card to the second slot, which is inactive in the motherboard's native Intel mode. Next you have to remove the existing BIOS and install the one that comes with the riser card. This card also has its own DDR memory slots as AMD processors access memory in a different way to Intel's. If you've already used the motherboard in Intel mode, you can't reuse the memory, as the Intel part of the board uses DDR2 memory.

We tested the motherboard in both configurations, starting with a 3.6GHz Pentium 4 processor. Its *Shopper* application benchmark score of 119 is slightly below that of other motherboards because the SiS 656 chipset is slower than Intel's 945 or nVidia's nForce 4. With the the A4S Socket 754 riser card and Sempron 3400+ installed, it scored 111 in our application benchmarks, which is slower than the score this processor clocked up the last time we used it.

Performance from both AMD and Intel processors wasn't as good as we had hoped. While the motherboard is quite cheap, buying the riser card makes it an expensive choice for AMD processors. Ultimately, you are better off choosing the type of processor you want and buying a dedicated motherboard for it.

David Ludlow

✓ Cheap LGA775 motherboard

✗ Difficult to convert; expensive as an AMD motherboard

SPECIFICATIONS PF88 SiS656 chipset, takes Intel LGA775 processors, four DDR2 slots, 1x PCI-E x16, 1x PCI-E x1, 2x PCI, 4x USB2, FireWire, Gigabit Ethernet, 7.1 surround sound, integrated graphics, 6x SATA2, 2x IDE, processor upgrade slot
A4S SiS 756 chipset, takes AMD Socket 754 processors, 2x DDR slots

